

# Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

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SGD021-15

Room:201A

Time:May 23 12:15-12:30

## A GNSS-R system based on software defined radio

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The remote sensing community has an increasing interest in analyzing GNSS reflections as they provide valuable information about the physical characteristics of the reflection area. This technology operates usually with two antennas in order to monitor direct and reflected signals. One up-looking (RCHP) and one down-looking (LHCP) antenna is deployed at the same site and analysis of the differential delay and/or the cross-correlation function w.r.t. to delay and Doppler shift allows to deduce the physical properties of the scattering surface. In order to develop a GNSS-R off-the-shelf system RHCP and LHCP L1 active patch antennas are utilized together for this purpose. Signals are sampled directly in the RF and sent to a PC over a Gigabit ethernet connection. This allows us to implement the system as a software radio using readily-available, low-cost RF hardware and commodity processors. Field tests are carried out on a 60m high telecommunication tower located NICT's headquarter in Koganei, Tokyo.